Release Date: September, 2015

Updates:

Database Foundations

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Business Requirements
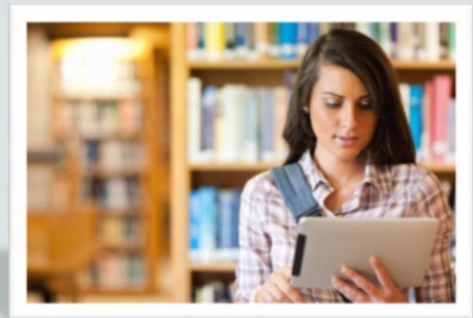
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Roadmap

About the Course

Introduction to Databases

Types of Database Models

Relational Databases

Database Storage Structures

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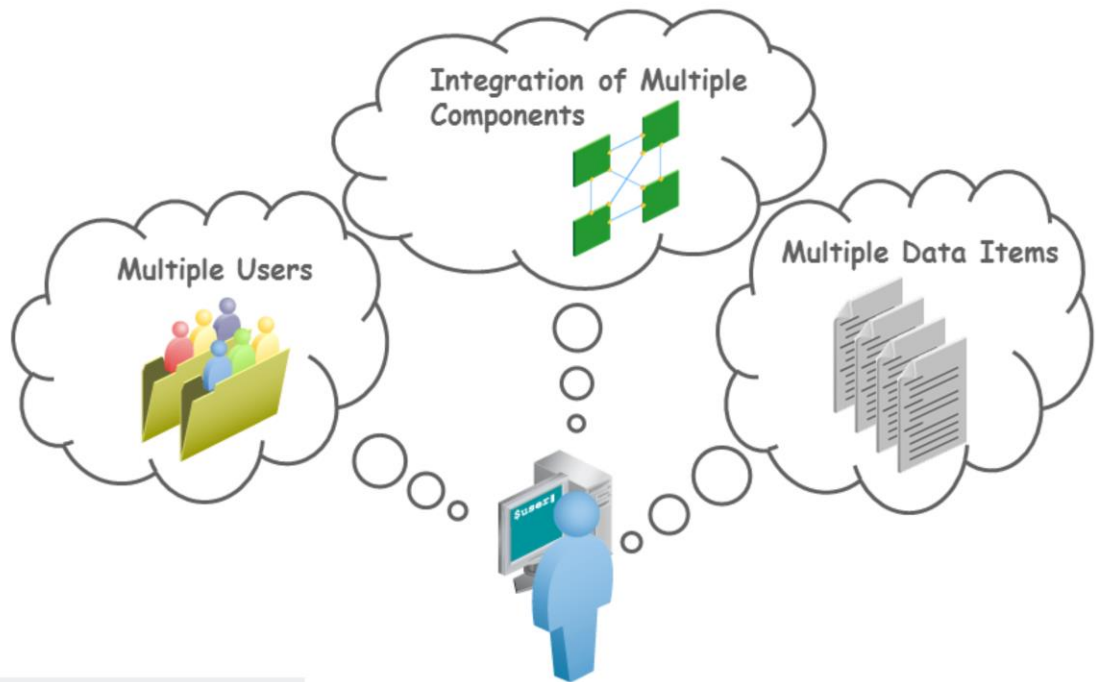
Understanding Business Requirements

Objectives

This lesson covers the following objectives:

- Explain the need for a database solution

- Describe the importance of business rules

- Identify guidelines and examples of writing business rules

Why Do I Need a Database Solution?

- The basic component of a file in a file system is a data item. Examples of data items in the real world are last name, first name, street address, and employee ID.

- A database is a more complex object. It is a collection of interrelated stored data that must meet the needs of many users. A database must also adhere to the business rules and processes of the organization.

- Advantages of using a database rather than a simple file system:

  – Availability of data to a diverse group of users

  – Integration of data for easier access and modification when performing complex transactions

  – Data integrity and reduced data redundancy

Case Scenario: Need a Database Solution

	STUDENT_ID	SPORT_1	PRICE_1	SPORT_2	PRICE_2
Record 1	ST0001	Tennis	$100	Badminton	$150
Record 2	ST0002	Soccer	$175	Tennis	$100
Record 3	ST0003	Cycling	$200	Badminton	$150
....	....	....	....	....	....

↑

This is a flat file that stores information about students, the sports that they selected, and the price for each sport that they selected. This scenario warrants the need for a database.

The data stored in the flat file includes the student name, the sport they play, and the membership cost for each sport. This scenario demonstrates the need for a database. The flat file depicted in the slide shows redundant information about each student. Modifications include identifying each student uniquely and eliminating recurring columns/fields.

Case Scenario: Possible Database Solution

Student Details Table

STUDENT_ID	FIRST_NAME	LAST_NAME
ST0001	Sean	Smith

Sport Details Table

SPORT_ID	SPORT_NAME	PRICE
TN001	Tennis	$100

Participant Details Table

STUDENT_ID	SPORT_ID	SEMESTER_ DETAILS
ST0001	TN001	Fall2015

Flat file was split into three tables.

A possible database solution is to split the flat file into relational database tables, eliminating the issues related to:

- Redundancy
- Data entry anomalies
- Inconsistency

Importance of Business Rules

- It is important to identify and document business rules when designing a database.
- Business rules:
  - Allow the developer/architect to understand the relationship and constraints of the participating entities
  - Help you understand the standardization procedure that an organization follows when handling huge data
  - Should be simple and easy to understand
  - Must be kept up-to-date

- Business rules are used to understand business processes and the nature, role, and scope of the data.
- Business rules help you categorize and design database tables.
- Business rules are generally provided by:
  - Managers
  - Policy makers
  - Documentation and operation manuals
  - Organizational procedures and standards
  - Interviews with end users

Note: Not all business rules can be modeled in a database.

Case Scenario: Identifying Business Rules

SunStar Online Book Rentals is a successful company that rents books. With its growing business, SunStar needs to enhance its information system to support proposed changes to the business. SunStar attracts new customers easily and the number of rentals is growing rapidly. The customer base is not stable, however, which is a cause for concern.

The slide discusses a business case scenario where you need to identify the business rules and associated constraints.

Case Scenario: Identifying Business Rules

The main idea is to introduce three types of membership (gold, silver, bronze), although more may be introduced later. Bronze membership is free. Silver and gold memberships incur a fee but entitle the member to privileges. The type of membership cannot be changed.

The slide discusses a business case scenario where you need to identify the business rules and associated constraints.

Case Scenario: Solution for Identifying Business Rules

- Business Rule:
  - Members will pay membership fees.
- Constraint:
  - Members can belong to one of the three types of membership (gold, silver, or bronze).

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Some of the key business rules and constraints are displayed in the slide. Constraint is another name for a restriction to a business rule.

Case Scenario: Solution for Identifying Business Rules

- Business Rule:
  - Bronze membership is free. Silver and gold memberships incur a fee.

- Constraint:
  - Type of membership cannot be changed.

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Some of the key business rules and constraints are displayed in the slide. Constraint is another name for a restriction to a business rule.

Case Scenario: Identifying Key Business Rules, Problems, and Assumptions

Note	Business Rule	Assumption	Problem
To ensure that new book arrivals happen on the 21st of every month.			
Librarian cannot easily identify DVDs that are seriously overdue (more than two weeks late).			
Our current system probably uses Oracle Database 10g and is on UNIX.			

Identify the statements as a business rule, a problem, or an assumption.

For this case scenario, identify the statement:

- **Business rule:** It is used to understand business processes and the nature, role, and scope of the data.
- **Assumption:** It can be defined as a fact or a statement that has been taken for granted.
- **Problem:** It can be defined as a situation or scenario that requires attention and a possible solution to alleviate the situation.

Case Scenario: Identifying Key Business Rules, Problems, and Assumptions

Note	Business Rule	Assumption	Problem
To ensure that new book arrivals happen on the 21st of every month.	X		
Librarian cannot easily identify DVDs that are seriously overdue (more than two weeks late).			X
Our current system probably uses Oracle Database 10g and is on UNIX.		X	

Here is the solution!!!!

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Summary

In this lesson, you should have learned how to:

- Explain the need for a database solution

- Describe the importance of business rules

- Identify guidelines and examples of writing business rules